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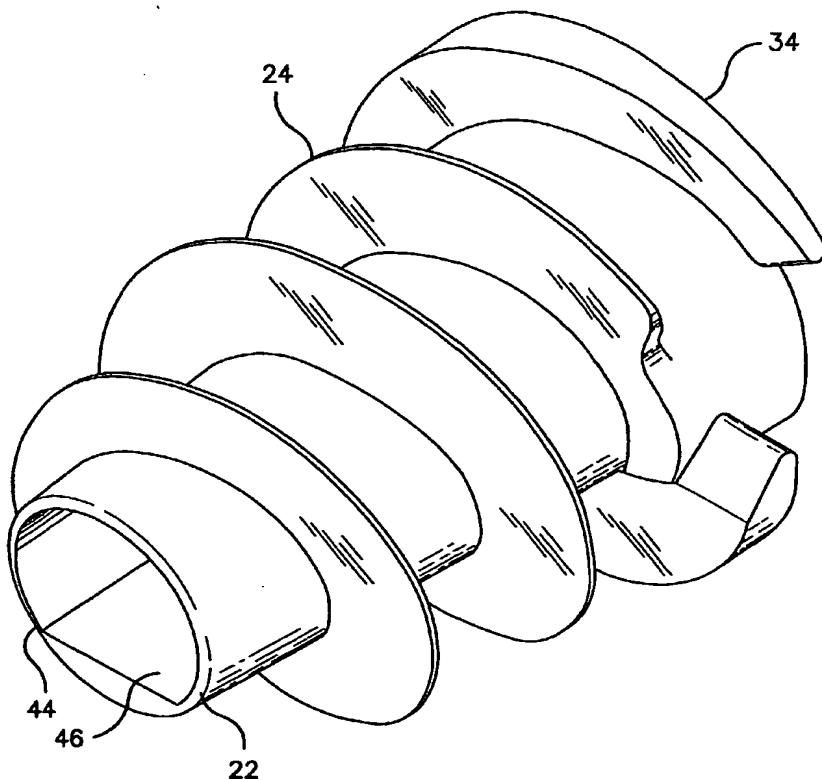
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[Continued on next page]

(54) Title: HERNIA MESH TACKS



(57) Abstract: There are disclosed various embodiments of surgical tacks for use in surgical procedures. The tacks generally include a head (14) and a barrel portion (12) extending distally from the head. Preferably the head and the barrel portion define a throughbore (18) for receipt of a drive instrument. A thread (34) on the head is provided to engage threads in the installation tool. A tissue thread (24) is provided on the barrel, portion to engage tissue. Distal and proximal surfaces of the tissue thread may be oriented at various angles relative to the barrel portion. There is also disclosed an insertion instrument to insert one or more tacks. There is further disclosed a model device for use in explaining the operation of the instrument.

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European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

Patent Application No
PCT/US 03/18739A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61B17/00 A61F2/00 A61B17/04 A61B17/064 A61B17/068

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61B A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 030 162 A (HUEBNER RANDALL J) 29 February 2000 (2000-02-29) column 6, line 15 -column 8, line 17; figures 10-17 ---	1, 3, 4, 9-13, 16-19
X	WO 01 97677 A (ARTHREX INC) 27 December 2001 (2001-12-27) page 4, line 11 -page 5, line 12; figures 1-9 ---	1-5, 8, 16, 17, 19
X	US 6 096 060 A (ANDERSON SHARON K ET AL) 1 August 2000 (2000-08-01) column 3, line 65 -column 5, line 50; figures 1-5 --- -/-	1-5, 8, 13, 14

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
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- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the International filing date but later than the priority date claimed

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- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 891 146 A (SIMON TIMOTHY M ET AL) 6 April 1999 (1999-04-06) column 3, line 46 -column 5, line 18; figures 1-10 ---	1-4, 12-15
X	US 5 730 744 A (WINTERS JR THOMAS F ET AL) 24 March 1998 (1998-03-24) column 4, line 11 -column 6, line 47; figures 1-7 ---	1-5, 16, 17, 19
X	US 5 169 400 A (HURST ACHIM ET AL) 8 December 1992 (1992-12-08) column 3, line 14-25; figures 1-5 ---	1, 3-5, 8
X	US 5 354 292 A (BRAEUEER HARRY L ET AL) 11 October 1994 (1994-10-11) column 5, line 11-28 column 6, line 3-30; figures 1A, 2 ----	1, 3, 16, 19
A	US 5 971 985 A (CARCHIDI JOSEPH E ET AL) 26 October 1999 (1999-10-26) abstract; figure 1 -----	1-15

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tional application No.
'CT/US 03/18739

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: 20 because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT – Method for treatment of the human or animal body by surgery
2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-15

A surgical tack for use in a surgical procedure comprising:
a head;
a barrel portion extending distally from said haed; and
a thread formed on an outer surface of the barrel portion.

2. Claims: 16-19

A surgical instrument and tack for use in a surgical procedure comprising:
a surgical instrument having a handle portion, an elongate tubular portion extending distally from the handle portion,
a drive rod rotatably mounted in the elongate tubular portion and an actuator operatively associated with the drive rod such that actuation of the actuator rotates the drive rod relative to the elongate drive portion; and
at least one surgical tack positionable within the elongate tubular portion, the surgical tack having a head, a barrel extending distally from the head and an indent formed in the head to recieve a portion of the drive rod.

INTERNATIONAL SEARCH REPORT

- International Application No
PCT/US 03/18739

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